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09/671,436	09/27/2000	Yoshinari Matsuda	09792909-0425	6069

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EXAMINER

LEVI, DAMEON E

ART UNIT PAPER NUMBER

2841

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/671,436

Applicant(s)

MATSUDA ET AL.

Examiner

Dameon E. Levi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03/13/2006(RCE).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**  
**REQUEST FOR CONTINUED EXAMINATION**

The request filed on 03/13/2006 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on Application No. 09/671,436 is acceptable and a RCE has been established. An action on the RCE follows.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

**Claims 1-6, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Matthies et al US Patent 6476783.**

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**Regarding claim 1**, Matthies et al discloses a printed circuit board comprising:  
a glass substrate(elements 110, Figs 19,20) provided with through-holes (element 112, Figs 19,20), the glass substrate having a sealed side surface(element 1924, Figs 19,20) facing the portion to be sealed from moisture and an exposed side surface(bottom surface of element 110, Figs 19,20), conductive patterns(element 1920, Figs 19,20, also column 17, lines 63-65) provided on each surface of the glass substrate wherein a conductive pattern on the sealed side surface of said glass substrate is in electrical communication with a conductive pattern on the exposed side surface via the through-holes(column 17, lines 63-65), the conductive patterns on said sealed side surface being connected to at least one display element(element 102,1924, Figs 19,20, as well as, column 17, line 65 – column 18, line 15), and a sealing member provided to fill the through holes, the sealing member being operable to inhibit moisture permeation through the through holes(column 17, line 65 – column 18, line 15).

**Regarding claim 2**, Matthies et al discloses wherein the glass substrate is a no-alkali glass substrate (elements 110, Figs 19,20).

**Regarding claim 3**, Matthies et al discloses wherein the sealing member is a conductive paste containing an epoxy resin as a binder(column 17, line 65 – column 18, line 55).

**Regarding claim 4**, Matthies et al discloses wherein a conductive film is provided on an inner wall surface of each of the through-holes in such a manner as to connect the conductive patterns provided on both surfaces of the glass substrate to each other, and an inner space, inside the conductive film, of the through-hole is filled with the sealing

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member (elements 112, Figs 19, 20).

**Regarding claim 5**, Matthies et al discloses wherein the sealing member is an epoxy resin(column 17, line 65 – column 18, line 55).

**Regarding claim 6**, Matthies et al discloses wherein the surface of the sealing member exposed from each of the through-holes is covered with a metal film (elements 112, Figs 19, 20).

**Regarding claim 8**, Matthies et al discloses wherein each of said conductive patterns has a stacked structure of an epoxy resin film and a copper film formed thereon(column 17, line 65 – column 18, line 55).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matthies et al US Patent 6476783 in view of Nakazawa et al US Patent 6411349.

**Regarding claim 9**, Matthies et al discloses a device comprising:

a printed wiring board including a glass substrate(elements 110, Figs 19,20) provided with through-holes(element 112, Figs 19,20) the glass substrate having a sealed side surface (element 1924, Figs 19,20) facing a portion to be sealed from moisture and an exposed side surface(bottom surface of element 110, Figs 19,20) , conductive

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patterns(element 1920, Figs 19,20, also column 17, lines 63-65) provided on each surface of the glass substrate wherein a conductive pattern on the sealed side surface of said glass substrate is in electrical communication with a conductive pattern on the exposed side surface via the through-holes(column 17, lines 63-65), the conductive patterns on said sealed side surface being connected to at least one display element(element 102,1924, Figs 19,20, as well as, column 17, line 65 – column 18, line 15), and a first sealing member provided to fill the through holes (column 17, line 65 – column 18, line 15)

- a display device provided on one surface of the printed wiring board in such a manner as to be connected to a conductive pattern provided on the one surface of the printed wiring board (elements 1912' , Figs 19, 20, column 17, lines 49-65)
- a drive component(elements 134 , Figs 19, 20, column 17, lines 49-65) for driving the display device, the drive component being disposed on the exposed surface of the printed wiring board in such a manner as to be connected to the conductive pattern provided on the other surface of the printed wiring board(column 17, lines 49-65)

Nakazawa et al discloses a display device assembly wherein

- a second sealing member provided in such a manner as to surround a display device while being in contact with a printed wiring board and a protective glass board (element 252, Fig 12)

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to have to add a second sealing member as taught by Nakazawa et al for the purpose vacuum sealing the display assembly as a whole.

**Regarding claim 10**, Matthies et al discloses wherein the glass substrate is a no-alkali glass substrate (elements 110, Figs 19,20).

**Regarding claim 11**, Matthies et al discloses wherein the sealing member is a conductive paste containing an epoxy resin as a binder(column 17, line 65 – column 18, line 55).

**Regarding claim 12**, Matthies et al discloses wherein a conductive film is provided on an inner wall surface of each of the through-holes in such a manner as to connect the conductive patterns provided on both surfaces of the glass substrate to each other, and an inner space, inside the conductive film, of the through-hole is filled with the sealing member (elements 112, Figs 19, 20).

**Regarding claim 13**, Matthies et al discloses wherein the sealing member is an epoxy resin(column 17, line 65 – column 18, line 55).

**Regarding claim 14**, Matthies et al discloses wherein the surface of the sealing member

exposed from each of the through-holes is covered with a metal film (elements 112, Figs 19, 20).

**Regarding claim 15**, Matthies et al discloses a device comprising:

- a printed wiring board including a glass substrate(elements 110, Figs 19,20) provided with through-holes(element 112, Figs 19,20) the glass substrate having

a sealed side surface (element 1924, Figs 19,20) facing a portion to be sealed from moisture and an exposed side surface(bottom surface of element 110, Figs 19,20) , conductive patterns(element 1920, Figs 19,20, also column 17, lines 63-65) provided on each surface of the glass substrate wherein a conductive pattern on the sealed side surface of said glass substrate is in electrical communication with a conductive pattern on the exposed side surface via the through-holes(column 17, lines 63-65), the conductive patterns on said sealed side surface being connected to at least one display element(element 102,1924, Figs 19,20, as well as, column 17, line 65 – column 18, line 15), and a first sealing member provided to fill the through holes (column 17, line 65 – column 18, line 15)

bumps (element 1920, Figs 19,20) provided on a conductive pattern provided on one surface of a printed wiring board; a protective glass board (element 120, Figs 19,20) disposed in such a manner as to face to the one surface of the printed wiring board; a display device (elements 1912' , Figs 19, 20, column 17, lines 49-65) provided on the surface, facing to the printed wiring board, of the protective glass board in such a manner as to be connected to the bumps

a drive component(elements 134 , Figs 19, 20, column 17, lines 49-65) for driving the display device, the drive component being disposed on the exposed surface of the printed wiring board in such a manner as to be connected to the conductive pattern provided on the other surface of the printed wiring board;

Nakazawa et al discloses a display device assembly wherein:



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- a second sealing member is provided in such a manner as to surround a display device while being in contact with a printed wiring board and a protective glass board ( element 252, fig 12)

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have to add the second sealing member as taught by Nakazawa et al for the purpose vacuum sealing the display assembly as a whole.

**Regarding claim 16**, Matthies et al discloses wherein the glass substrate is a no-alkali glass substrate (elements 110, Figs 19,20).

**Regarding claim 17**, Matthies et al discloses wherein the sealing member is a conductive paste containing an epoxy resin as a binder(column 17, line 65 – column 18, line 55).

**Regarding claim 18**, Matthies et al discloses wherein a conductive film is provided on an inner wall surface of each of the through-holes in such a manner as to connect the conductive patterns provided on both surfaces of the glass substrate to each other, and an inner space, inside the conductive film, of the through-hole is filled with the sealing member (elements 112, Figs 19, 20).

**Regarding claim 19**, Matthies et al discloses wherein the sealing member is an epoxy resin(column 17, line 65 – column 18, line 55).

**Regarding claim 20**, Matthies et al discloses wherein the surface of the sealing member exposed from each of first sealing member exposed from each of the through-holes is covered with a metal film (elements 112, Figs 19, 20).

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***Response to Arguments***

Applicant's arguments with respect to claims 1-6, and 8-20 submitted in the RCE dated 03/13/2006 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dameon E. Levi whose telephone number is (571) 272-2105. The examiner can normally be reached on Mon.-Fri. (9:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dameon E Levi  
Examiner  
Art Unit 2841

DEL